MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 2, 2018/2019

TQA7011 – SOFTWARE QUALITY ASSURANCE AND TESTING

(All sections / Groups)

23rd JANUARY 2019
10.00am-12.00pm
(2 Hours)

INSTRUCTIONS TO STUDENTS

1. This Question paper consists of 4 pages (including cover page) with 4 Questions only.
2. Attempt **ALL** questions. All questions carry equal marks and the distribution of the marks for each question is given.
3. Please print all your answers in the Answer Booklet provided.

Question 1

(a) List down and explain FOUR activities of the fundamental test process.

(4 marks)

(b) One of the product operation factors include Reliability. Explain reliability using your own example. (3 marks)

(c) McCabe's cyclomatic complexity metrics measures the complexity of a program or module at the same time as it determines the maximum number of independent paths needed to achieve full line coverage of the program. Define independent path. (3 marks)

Question 2

(a) Differentiate the activities to be performed by testing and debugging.

(2 marks)

(b) You are testing a safety-critical and software-controlled medical device that will be implanted in patient's bodies. Failure of the device, including software-related failure, means the patient may die. Any anomalies with the device would require invasive surgery to remove and replace the device and/or its software. Suggest the appropriate test techniques to use.

(2 marks)

(c) An e-commerce system for purchasing novels online is tested. An excerpt of the requirements specification states as follows:

"The customer shall be able to order from 1 to 99 copies of any novel which is in stock and for which sufficient copies are in stock to fulfill the quantity ordered."

Other portions of the requirements specification deal with handling invalid order amounts, including orders which exceed the stock available. Provide three test cases for the requirements specification excerpt given. (3 marks)

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(d) Static analysis looks for defects in software source code and software models. Identify THREE types of typical static analysis bugs. (3 marks)

Question 3

(a) It is often necessary to simulate parts of call flow reachable from modules(s) under test during unit, component and integration testing. Explain Driver and Stub in such simulation and give an example to illustrate.

(4 marks)

(b) Given the following program, how many tests are required to achieve 100% decision coverage? (2 marks)

```
If x=3 then
   Display_messageX;
    If y=2 then
      Display_messageY;
    Else
      Display_messageZ;
Else
  Display_messageZ;
```

(c) You are testing a new mobile application and want to make sure that your potential users will like it. You gather a cross-section of the users to study and accomplish tasks based on screen prototypes. You carefully observe their ability to complete the tasks without being confused or stuck. Describe the type of test which you are performing. (2 marks)

(d) Explain the purpose of confirmation testing and regression testing. (2 marks)

Continued...

Question 4

(a) One of the areas of risk is about the risk of creeping featurism. Briefly describe this type of risk. (3 marks)

(b) Non-testability is one of the risks which should be the easiest to solve, yet it is also the hardest to implement in an ongoing organization. Provide TWO factors which affect testability. (2 marks)

(c) Provide TWO advantages and TWO disadvantages of the ISO 9003 certification. (2 marks)

(d) There are TWO types of CMMI Model Representation namely staged representation and continuous representation. Staged representation offers a roadmap to approach process improvement and maximizing benefits to the organization. Describe the continuous representation. (3 marks)

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